

REMARKS/ARGUMENTS

Introduction

This Reply after is submitted in response to the Office Action mailed February 2, 2009. Claims 24, 29-33 and 43-45 are pending in the present application. The Office Action included the following rejections.

Claims 24, 29-33 and 43-45 were rejected under 35 U.S.C. § 101.

Claims 29-31 and 33 were rejected under 35 U.S.C. § 112, second paragraph.

Claims 24, 29-33 and 43-44 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,628,737 ("Timus").

Claim 45 was rejected under 35 U.S.C. § 103(a) as being obvious over Timus in view of U.S. Patent No. 5,991,611 ("Palumbo").

Reply to the 35 U.S.C. § 101 of Claims 24, 29-33 and 43-45

Claims 24, 29-33 and 43-45 were rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Independent claim 24 has been amended to recite, "said digital audio signal that represents an analog audio signal" This amendment removes any doubt as to whether the digital audio signal is the result of an underlying transformation for use by a machine.

Claims 29-33 and 43-45 depend on claim 24 and, therefore, also involve an underlying transformation for use by a machine.

Accordingly, applicant respectfully requests that the 35 U.S.C. § 101 rejections be withdrawn.

Reply to the 35 U.S.C. § 112 of Claims 29-31 and 33

Claims 29-31 and 33 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter applicant regards as the invention.

With regards to claims 29-31, the Examiner noted that claims 29-31 recited the phrase

“quality indicator vector.” But claim 24 had only introduced the phrase “a quality indicator.” This produced confusion as to whether “quality indicator vector” referred to “quality indicator.”

In response, applicant has amended claim 24 to recite “a quality indicator vector,” thereby clarifying that the “quality indicator vector” recited in claims 29-31 are the same quality indicator vector recited in claim 24.

With regards to claim 33, the Examiner noted that the recitation “a quality vector” is unclear as to how it should be interpreted. Applicant respectfully submits that it be interpreted as a quality vector that may be the same or different from “said quality indicator vector” discussed in independent claim 24.

In addition, the Examiner noted that there was insufficient antecedent basis for “the reference audio signal” in claim 33. Claim 33 has been amended to recite “a reference audio signal.”

For at least these reasons, applicant respectfully requests that the 35 U.S.C. § 112 rejections of claims 29-31 and 33 be withdrawn.

Reply to the 35 U.S.C. § 102(e) Rejection of Independent Claim 24

Among other things, independent claim 24 has been amended to recite “qualitatively evaluating said digital audio signal on the basis of said quality indicator vector.”

Timus discloses a method of synchronizing a test audio signal transmitted through a transmission channel and a reference copy of the same test signal. Synchronization is intended to ease signal quality measurement; however no actual method of performing such a quality measurement is disclosed.

The synchronization method discloses by Timus (col. 8, lines 19 – 47) comprises computing a $4*5=20$ element (reflection coefficients) vector for each temporal window comprising 800 samples. The so-computed vectors are only used to perform coarse synchronization between the transmitted signal and the reference copy. By no means is signal quality evaluated “on the basis” of said vectors in Timus. But on the other hand, applicant’s amended claim 24 recites, “qualitatively evaluating said digital audio signal on the basis of said quality indicator vector.”

Therefore claim 24 is not anticipated or made obvious by Timus.

It should also be noted that the vectors computed according to Timus have a dimension which is only forty times less than the number of audio samples in the time window (4 elements/"piece" * 5 pieces/window = 20 elements/window; a window comprises 800 samples; $20/800=1/40$). On the contrary, applicant's claim 24 recites the vectors having a dimension which is "at least one hundred times less" than the number of audio samples in a window.

For at least the aforementioned reasons, applicant respectfully requests that the anticipation rejection of claim 24 based on Timus should be withdrawn.

Reply to the Rejection of the Dependent Claims

At least because claims 29-33 and 43-45 depend on claim 24, claims 29-33 and 43-45 are also in condition for allowance.

In addition, applicant would like to note for the record additional reasons why dependent claims 29-32 are allowable over Timus.

Claim 29

It seems that the Examiner considers that curve Ψ of Timus (figure 9, upper panel) is representative of "temporal activity" of the audio signal.

Even if this was conceded, Timus does not disclose "calculating a sliding average...of the temporal activity" (e.g., of curve Ψ , according to the Examiner's interpretation). Instead, Timus disclose measuring the average number of minima of a distance function. See Timus, Figure 6. Computing the average number of minima of a function has nothing to do with measuring the average number of minima of said function. Moreover, the distance function has nothing to do with curve Ψ which, according to the Examiner's interpretation, corresponds to the "temporal activity" of the audio signal.

Moreover, Timus does not disclose "retaining a minimum value of M1 successive values of the sliding average" (of, e.g., the temporal activity). Instead, it discloses lowering or raising a

threshold depending on the number of minima of the distance function.

Therefore Timus also fails to disclose or suggest the specific recitations of claim 29.

Claim 30

At page 5, lines 2 – 3 of the Office Action the Examiner asserts that the “reflection coefficients” of Timus correspond to the “quality indicator” of the invention.

For rejecting claim 30, however, the Examiner asserts that the minimum of curve Ψ is the “quality indicator vector”.

Therefore rejection of claim 30 is flawed by inconsistency.

Claim 31

Timus does not disclose that the “quality indicator comprises a binary value that is the result of comparing said minimum value [of, e.g., the minimum of the sliding average of the temporal activity of the signal] with a given threshold.”

Even if it was admitted that curve Ψ represents the temporal activity of the signal (which is not conceded herein by applicant), the cited passage of Timus only discloses that said curve has a minimum value. However, Timus does not disclose comparing said minimum value to a given threshold in order to obtain a binary quality indicator.

It should also be noted that the Examiner rejects claims 30, 31 and 33 on the basis of a same passage of Timus, which is interpreted in different – and mutually incompatible – ways.

Therefore Timus fails in disclosing or suggesting the specific limitations of claim 31.

Claim 32

Timus does not disclose “determining the number of times per second said minimum value (of, e.g., the sliding average of the temporal activity of the signal) is below a given threshold.” Instead, it discloses lowering or raising a threshold depending on the number of minima of a distance function, which is something entirely different.

It should be noted that, for rejecting claim 29, the Examiner assumes that the claimed

feature of “temporal activity” correspond to curve Ψ of Timus. However, for rejecting claim 32 the Examiner identifies the moving average of said “temporal activity” with the distance function. Therefore the rejections of claim 29 and 32 are mutually inconsistent.

Also, as noted above, the Examiner rejects claims 30, 31 and 33 on the basis of a same passage of Timus, which is interpreted in different – and mutually incompatible – ways.

Therefore Timus fails in disclosing or suggesting the specific limitations of claim 31.

Withdrawn Dependent Claims

The remaining dependent claims, that is, claims 25-28 and 34-42, are considered withdrawn as being directed to a non-elected species, but should be rejoined upon the confirmation that a generic claim is found allowable.

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Conclusion

It is believed that a one-month extension of time and corresponding fee are required. It is not believed that any fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefor (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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